



# UNITED STATES PATENT AND TRADEMARK OFFICE

*[Handwritten signature]*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,928	11/28/2001	Ki-hyun Kim	1293.1243	7271
49455	7590	07/11/2005		EXAMINER
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			LUGO, DAVID B	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/994,928	KIM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David B. Lugo	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 November 2001.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 14-20 is/are allowed.  
 6) Claim(s) 1-3, 13 and 21-24 is/are rejected.  
 7) Claim(s) 4-12 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 28 November 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/30/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 630, 650 (Fig. 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 6 is objected to because of the following informalities:

The dependency of claim 6 should be corrected as it currently depends from itself.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 2637

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 13 and 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kim U.S. Patent 6,697,311.

5. Regarding claim 1, Kim discloses a signal processing method for reproducing an original signal from a channel signal comprising applying a first algorithm to a first part of the channel signal (Fig. 6A) to reproduce a part of the original signal corresponding to the first part of the channel signal in channel error detector & corrector 200, where the first part of the channel signal is considered to be the circled transition portion shown in Fig. 6, and a second algorithm is applied to a second part of the channel signal, which is considered to be a portion of the signal not near a transition point, which involves no adjustment to the signal during that portion (col. 10, lines 4-51).

6. Regarding claim 2, the first part of the channel signal is a part in which a level transition occurs, as shown in Figs. 6-7.

7. Regarding claim 3, Kim discloses a signal processing apparatus for reproducing an original recorded signal from a predetermined channel signal comprising a maximum error region determining unit 200 which determines a region having a maximum likelihood of error (i.e. signal at transition region – see Fig. 6, col. 10, lines 4-19) and performs an optimal path searching function to find a minimum error generation path (4, 2, n, or 3 – Fig. 6A) to correct a part of the signal (col. 10, lines 29-51), and a signal recovery unit (demodulator 300) which applies a predetermined algorithm to the channel signal including the corrected portion in order to recover the original data.

Art Unit: 2637

8. Regarding claim 13, the demodulator 300 is considered to recover the data using threshold decision (col. 9, lines 9-11).

9. Regarding claims 21 and 23, Kim discloses an apparatus for reproducing a signal from a channel signal comprising a channel error detector & combiner 200, which determines a part of the signal having a high error rate (i.e. signal at transition region – Fig. 6) and applies an error correction by adjusting the signal to remove errors (col. 10, lines 4-51, Figs. 5-7).

10. Regarding claims 22 and 24, Kim discloses an apparatus for reproducing a signal from a channel signal comprising a channel error detector & combiner 200, which determines a part of the signal having a high error rate (i.e. signal at transition region – Fig. 6) and determines an optimal path of the channel signal by adjusting the signal to remove errors (col. 10, lines 4-51, Figs. 5-7).

*Allowable Subject Matter*

11. Claims 14-20 are allowed.

12. Claims 4-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome any objections set forth in this Office action.

13. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record also fails to teach the reproduction of an original signal from a channel signal including modeling a predetermined signal that has passed through a channel without being subjected to noise to obtain a reference signal, extracting possible error paths from a signal corresponding to the part of the signal occurring during a maximum error interval, computing differences between a signal corresponding to each of the possible error paths and the

Art Unit: 2637

reference signal and replacing the signal corresponding to the error path having the smallest signal difference with the reference signal in order to recover the original signal.

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Kim et al. U.S. Patent 6,002,730 disclose a method for detecting data where a sampling clock recovering process operates only at the edge of symbol data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
7/6/05



JAY K. PATEL  
SUPERVISORY PATENT EXAMINER